REMARKS/ARGUMENTS

Status of the claims

Claims 1, 5-13, 15, 17, 19, 20, and 22 are pending. Claims 1 and 15 are amended. Support for the amendments is found throughout the claims and specification as filed. Specific support for detecting the RDGC GPCR phosphatase activity on a mutant rhodopsin lacking the last 18 amino acids at the cytoplasmic terminus is found, *e.g.*, on page 44 and Figure 1B. Support for the concept of a control sample is found, *e.g.*, on page 9, lines 19-21.

Rejection under 35 USC § 112, first paragraph - New matter

The Examiner has rejected claims 1, 5-13, 15, 17, 19, 20, and 22 as allegedly failing to comply with the written description requirement, and in particular, the proscription against new matter. According to the Examiner, the specification does not provide a basis for a method of screening that comprises a step of providing a second sample comprising a mutant rhodopsin lacking the last 18 amino acids at the cytoplasmic terminus. To the extent the rejection applies to the amended claims, Applicants traverse.

The Invention

The invention is directed to methods of screening for compounds that modulate RDGC GPCR phosphatase activity, wherein the method comprises comparing the functional effect of a test compound under experimental conditions to that of a control. As explained below, one of skill reading the present specification would readily recognize the inventors' possession of the recited control sample for a screening method.

Legal Standard

The legal standard for written description is one of reasonableness, *i.e.*, whether a skilled artisan would reasonably believe that the inventors had possession of the claimed invention as of the filing date. As explained in the MPEP § 2163, "the proscription against the introduction of new matter in a patent application serves to prevent an applicant from adding information that goes beyond the subject matter originally filed." The MPEP continues, "there is

no *in haec verba* requirement, and newly added claim limitations must be supported in the specification through express, implicit, or inherent disclosure."

Sufficiency of disclosure is discussed in *In re Chilowsky*, 108 USPQ 321 (CCPA 1956). The court was addressing whether claims involving energy transport in a nuclear reactor were indefinite and/or inoperable. The issue, however, was similar to the one raised here, *i.e.*, what is meant by sufficient disclosure. The court stated, "an application embraces not only what is expressly set forth..., but what would be understood by persons skilled in the art. ... [T]hat which is common and well known is as if it were written out in the patent." *Id.* at 325. The court acknowledged that many of the procedures and materials were described in general terms, but found that it would be fatal only if those of skill in the art did not possess the necessary knowledge to make the required determination. *Id.* at 326.

The Federal Circuit addressed sufficient disclosure in the context of the written description requirement in *Moba B.V. v. Diamond Automation, Inc.*, 66 USPQ2d 1429 (Fed. Cir. 2003). The court reviewed its case law, and explained that the written description requirement does not require the application to describe exactly the subject matter claimed as long as one of skill would recognize that the inventor invented what is claimed. *Id.* at 1469. The court found that the claims at issue were adequately described because every element of the claim was disclosed in sufficient detail to allow this recognition. *Id.* In *Vas-Cath Inc. v. Mahurkar*, 19 USPQ2d 1111, 1116 (Fed. Cir. 2001), the court emphasized the case-specific nature of the inquiry, stating, "it should be readily apparent from recent decisions of this court involving the question of compliance with the description requirement of §112 that each case must be decided on its own facts."

The Present Disclosure is Sufficient to Convey Possession

The inventors used the recited mutant rhodopsin as a control in Example 1. The inventors sought to demonstrate that RDGC phosphatase was responsible for removing the phosphate residues from rhodopsin under orange light conditions. In order to do so, they designed an experiment with a number of samples, where a single parameter was varied in each

sample (*see* Example 1 of the present specification). One of skill would recognize this as design of proper control samples, *i.e.*, a basic tenet of the scientific method.

In Example 1, the RDGC GPCR phosphatase activity in each sample was determined, and the results compared. For example, as a negative control, one of the samples omitted functional RDGC phosphatase (designated *rdgC* in Figure 1). Another negative control omitted the GPCR substrate of RDGC phosphatase, *i.e.*, rhodopsin (designated *ninaE* in Figure 1). Finally, as a variation on these controls, the particular residues of rhodopsin targeted by RDGC phosphatase were omitted (*see* the samples designated Rh1Δ356 in Figure 1B). These samples demonstrated the location of RDGC GPCR phosphatase activity, as it was phosphorylated to roughly the same extent in the presence or absence of RDGC phosphatase (compare the last two lanes of Figure 1B).

Example 1 was directed to detecting RDGC phosphatase activity under normal circumstances, but did not describe a method of screening for modulators of that activity. A skilled molecular biologist, however, would be quite familiar with the concept of controls, and would understand that any screening method would require appropriate controls. The skilled molecular biologist would also be fully capable of determining which controls were appropriate.

The claimed methods are based on detecting the level of RDGC GPCR phosphatase activity in the presence and absence of a modulator test compound. As explained above, the present specification provides examples of controls to use when detecting the level of RDGC GPCR phosphatase activity. Not only would a skilled artisan be able to design controls, based on common sense and experience with the basic scientific method, but this person would understand that the controls used in Example 1 to detect RDGC GPCR phosphatase activity could be used in similar screening methods.

More important for the issue of sufficient disclosure, a skilled molecular biologist would recognize that the inventors understood the concept of controls, and thus had possession of the presently claimed methods. Additional evidence of the inventors' understanding of controls is found on page 9 of the specification, which provides an exemplary control for a screening assay. While the control sample described there is not the one recited in the claims,

one of skill would certainly recognize that the inventors knew (i) that screening assays require controls, and (ii) that a control sample with Rh1Δ356 would be an appropriate comparison in assays for RDGC GPCR phosphatase activity. The specification therefore complies with the written description standard recited in *Moba*, as it describes every element of the claimed methods so that one of skill would recognize the inventors' possession of the same.

As reviewed above, the standard for sufficient disclosure is one of reasonableness, not precise "*in haec verba*" support. The assertion that one reading the present specification, focused entirely on signal transduction and commonly-used assays, would not appreciate the inventors' possession of a control sample that is described in the specification does not comply with this standard. Accordingly, Applicants submit that the claimed methods are sufficiently disclosed, and respectfully request withdrawal of the rejection under the first paragraph of 35 USC § 112 for new matter.

Rejection under 35 USC § 112, second paragraph

The Examiner has rejected claims 1, 5-13, 15, 17, 19, 20, and 22 as allegedly indefinite. According to the Examiner, the claimed methods do not utilize the "second sample" in any of the recited methods. In addition, the Examiner contends that the language of "detecting a change" in activity is unclear because the claims do not recite what is being compared.

Solely in an effort to expedite prosecution, Applicants submit amended claims 1 and 15. As amended, the claimed methods clarify that the level of RDGC GPCR phosphatase activity is detected in both the first and second samples, both before and after addition of a test compound. Thus, the amended claims make clear that the second sample is utilized in the claimed methods. In addition, the amended claims omit the "detecting a change" language, thereby addressing the second aspect of the rejection.

In view of the amendments to the claims and foregoing comments, Applicants respectfully request withdrawal of the rejections under the second paragraph of 35 USC § 112.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,

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